Draft Pine Mountain LSR

Economics/Financial Analysis

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Scope of Analysis and Analysis Methods

Costs and expected stumpage values associated with the Pine Mountain project were estimated based on values from recent projects consisting of the service work entailed and with the most recent bids from sales on the Mendocino NF, along with considerations that would increase or decrease expected timber value bids on the project (for example: volume/acre, roadwork, haul distance, LOPs, etc.).

This analysis will assess potential impacts from proposed activities. Financial feasibility measuring the discrepancies between project costs and revenues over the life of the project was analyzed using the Forest Service Quicksilver program. Appraisals generated in the Region 5 TEA appraisal program will be used to facilitate an advertised bid rate for the project using the most up to date wood market prices.

The geographic scope of the economic and social analysis will mainly focus on Mendocino and Lake Counties, but it should be mentioned that with the lack of mill processing facilities and competition within those counties, that other, Regional facilities may be interested in the project and acquire remunerations relative to their workforce within those counties where mills reside.

Finally, the temporal scope of the analysis is around 13 years, the duration of the proposed activities (2018-2031).

A. Project Feasibility

Project feasibility relies on a residual value (stumpage = revenues - costs) feasibility analysis that uses local delivered log prices and stump to mill costs to determine if a project is feasible – will it sell, given current market conditions. For the DEIS, the most recent bids received on the Mendocino National Forest were used to estimate the predicted bid (expected high bid resulting from the timber sale advertisement) for the project. A comparison to base rates (revenues considered essential to cover regeneration plus minimum return to the federal treasury) was not analyzed as the analysis of the expected advertised bid is a baseline to help make an inference on the feasibility of the project from a monetary perspective. The high proportion of Douglas-fir expected to be removed relative to other species in the project makes it difficult to discern if the closest mill in Ukiah, CA would be interested in the project. Some mills predominately process some species and not others and Mendocino Redwood mainly processes redwood species, but is capable of processing Douglas-fir also. Being that the expected bid rate currently exceeds base rates, Pine Mountain LSR project may be considered a feasible project.

The infeasibility of a project indicates an increased risk that the project may not attract bids and may not be implemented (36 CFR 223.61 and FSM 2430.2). If the feasibility analysis indicates that the project is

not feasible (predicted high bid is less than the base rates), the project may be modified. For this project analysis, not all of the variables associated with an appraisal were considered, such as hauling and yarding costs. Road maintenance costs and slashing costs were included.

Financial Efficiency

Financial efficiency provides information relevant to the future financial position of the program if the project is implemented. Financial efficiency considers anticipated costs and revenues that are part of Forest Service monetary transactions. Present net value (PNV) is used as an indicator of financial efficiency and is one tool used in conjunction with many other factors in the decision-making process. The PNV combines benefits and costs that occur at different times and discounts them into an amount that is equivalent to all economic activity in a single year. A positive PNV indicates that the alternative is financially efficient. Financial efficiency analysis is not intended to be a comprehensive analysis that incorporates monetary expressions of all known market and non-market benefits and costs. Many of the values associated with natural resource management are best handled apart from, but in conjunction with, a more limited financial efficiency framework. These non-market, ecological benefits are not in these calculations and are discussed throughout the EIS.

B. Economic Impact (Jobs and Labor Income)

Economic impacts evaluate potential direct, indirect, and cumulative effects on the economy. Generally, these impacts are measured by estimating the direct employment (full- and part-time jobs) and labor income generated by the 1) processing of the timber volume from the project, and 2) service work engaging in restoration activities planned for the project. Direct employment and resulting income benefit employees and their families facilitating a direct effect on the local economy.

For Pine Mountain, Mendocino Redwood Company in Ukiah (Mendocino County) is the closest mill capable of processing wood harvested from the project area. Analyzing the effects on labor and income from the estimated 5.775 MMBF anticipated from Pine Mtn project being hauled to Mendocino Redwood Co. would be difficult though as Mendocino Redwood prefers to process redwood species and does not have a history of bidding on sales within the Mendocino National Forest. Future discussion will take place as to where to appraise the destination of the wood harvested from Pine Mtn. Generally, Trinity River has a history of bidding and being awarded projects on the Mendocino National Forest that mostly consist of a Douglas-fir composition. Therefore, it would be reasonable to assume that most of the volume harvest during the project will be hauled to either Weaverville, CA or Oroville, CA. Pine species would likely be hauled to Anderson, CA. With that, this analysis will not provide an in-depth examination into jobs and labor income generated for wood processing. Obviously, if Mendocino Redwood bids on and is awarded Pine Mtn., the volume would increase their existing inventory of material and increase the job security of their employees. It is also positive that the wood has the ability to provide economic remunerations to other communities within the northern California region.

The Mendocino National Forest Land and Resource Management Plan discusses the implications of the Northwest Forest Plan and the inability of the Forest's timber program to play an economic role in any

of the 6 counties that fall within the Mendocino National Forests administrative boundary. Mills that existed on the perimeter of the Forest in the communities of Covelo and Paskenta shut down in the 90's and have facilitated difficulty for the Mendocino National Forest to develop economically feasible forest management projects.

Service items such as post mechanical harvest that requires additional slashwork or small diameter thinning, piling, masticating, etc., have the ability to promote economic incentives to local communities as service contracts may be awarded to contractors capable of performing to specification the items of work. Sometimes contracts are awarded to contractors who are not local, but still utilize local businesses consisting of food, gas, lodging, etc.

Other benefits for the community are generally minimal, but fallout types of opportunities exist for local communities within closeproximity of these project areas. Firewood collection opportunities increase for local folks who depend on wood as source for home heating.

Environmental Consequences

A. Project Feasibility

The estimation of project feasibility was based on the most recent bids on the Mendocino National Forest and the fact that wood prices have been gradually rising since the award of those projects back in 2013. One caveat to those projects was that roadwork was completed by the Forest Service and there were minimal road re-construction efforts needed for those past projects, but maintenance items were included within those bids. With that, Pine Mountain road package may put some additional roadwork on the onus of the contractor to bring roads up to specification before hauling and then continuing with road maintenance as hauling commences. Another variable of the analysis, was the amount of road maintenance itemized within each category of road level. I averaged what the estimated road maintenance costs/mile would be for roads in the project area consisting of different level of maintenance. Logging systems, timber species and quality, volume removed per acre, lumber market trends, costs for sale preparation, administration, slash treatment, road building and obliteration (alternative 2) are all taken into account for the estimated bids per alternative. Many dynamics may change between now and when the commercial material is actually appraised. It should be mentioned that the project has not yet been cruised and it's possible that the volume may be 10-20% more or less of the estimates used for volume under this analysis.

Base rates for Douglas-fir within the Region are $3/CCF and $6/MBF respectively. If road re-construction costs are included in the road package and appraisal, one would expect the bid rates to decrease and be closer to base rates. Base rate revenues are essential to cover regeneration plus minimum return to the federal treasury. The estimated high bid for each alternative is as follows:**Alternative 2 - $67.50/MBF; Alternative 3 - $66.05/MBF; Alternative 4 - $61.42/MBF; Alternative 5 - $59.44/MBF.** The Lakeview project was first appraised to Mendocino Redwood and the original offer went no bid. The second offer was at base rates and Mendocino Redwood bid on the project but was not awarded. In 2013, Hardin Sale on the Grindstone District sold for approximately $66/MBF, but Douglar-fir was bid at $88/MBF on that respective project. With prices gradually rising since that time, along with the majority of Pine Mtn project being Douglas-fir, make the estimated bids

reasonable. Market volatility the last several years still make it difficult to make analysis such as these conclusive.

Revenue estimates from the feasibility analysis are used in the financial efficiency analysis discussed below.

B. Financial Efficiency

The financial efficiency analysis is specific to the timber harvest, fuels reduction, and restoration activities associated with the alternatives (as directed in Forest Service Manual 2400-Timber Management and the Forest Service Handbook 2409.18). Costs for sale preparation, sale administration, slashwork, and burning are included. If exact costs were not known, the maximum of the cost range was used to produce mostly conservative results. Actual amounts per acre estimate on fuels work consisting of non-commercial cutting and re-arranging were hard to predict due to the fact that some of the intensity levels of the follow-up fuels work within the commercial units is unknown. Some of that work may require a light lop and scatter and others may require more intensive piling and yarding of unmerchantable size classes; wide range level of work from $250/acre to $1500/acre. Also, stewardship contracts sometimes offer a better value when goods are exchanged for services within these integrated types of project areas. There may also be opportunities for utilization of biomass and other small by-product markets, but the outlook is currently poor for that segment of the forest products market. Additional revenue and an increased PNV would occur if those markets engage with this project. The PNV was calculated using Quicksilver, an economic analysis program based on long-term, on-the-ground resource management projects. A 4% real discount rate was used over 13 year project lifespan (2018-2031).

This analysis is not intended to be a comprehensive cost-benefit or PNV analysis that incorporates a monetary expression of all known market benefits and costs that is generally used when economic efficiency is the sole or primary criterion upon which a decision is made. Many qualitative outcomes from Pine Mtn are hard to measure and are not included since they have no monetary value. Benefits from these projects such as reduced fire suppression costs with potential wildfire within that area post-treatment and habitat value that is being improved and maintainedare two good examples of how all benefits of these projects are hard to put a price on.

Table 1 summarizes the project feasibility and financial efficiency, predicted high bid (estimated stumpage value plus expected overbid), total revenue, and PNV for each alternative. Long-term recreation levels are not expected to be heavily impacted with an exception of a brief time of activity within the Pine Mountain lookout cabin vicinity. It may be unavailable for the dates of operating or the operations may be limited within certain dates to compensate for recreation activities at the cabin. The economic implications on this were not considered as it would be insignificant to the values that had thus far been generated for the project.

Table 1 indicates all action alternatives are financially inefficient when all stewardship/service items and burning activities are considered. The No Action Alternative has no costs nor revenue associated with it and in this case, has the highest PNV ($0). All action alternatives consist of negative PNV's greater than

$1 million. There is a tremendous amount of fuels reduction work being considered for the project and it is estimated that all of that work can take up to 10 years to complete.

A reduction of financial PNV in any alternative as compared to the most efficient solution is a component of the economic trade-off, of achieving that alternative. The No Action Alternative would not harvest nor take other restoration types of actions and therefore, incurs no costs. As indicated earlier, many of the values associated with the Pine Mtn project such as enhancing wildlife habitat, reducing threats of catastrophic wildfire, and restoring historic ranges of disturbance regimes to ecosystems are considered non-market benefits. These benefits should take high consideration along with the financial efficiency information presented here. These non-market values are discussed throughout the various resource sections found within this document.

Table 1. ***Project Feasibility and Financial Efficiency Summary for Pine Mountain LSR (2015 dollars)***

Category	Measure	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5
Timber Harvest Information	Acres Harvested	0	1650	1650	950	810
	Volume Harvested (MBF)	0	5,775	5,775	3,325	2,835
	Predicted High Bid ($/MBF)	N/A	$67.50	$66.05	$61.42	$59.44
	Total Expected Revenue (Thousands of $)	$0	$338,073.87	$339,619.51	$179,097.96	$150,037.45
Timber Harvest and All Other Planned Activities	PNV ($)	$0	-$1,476,785.21	-$1,478,526.52	-$1,676,794.46	-$1,888,462.95

Financial efficiency is one tool the decision maker uses to make the decision. Again, many of the outcomes are intangible such as, increases in the fires suppression options available to the line officer following treatments, effects on wildlife, potential social impacts on communities, and restoration of watersheds and vegetation. The line officer needs to take all of these factors into account when making a decision on projects like Pine Mountain LSR.

Activity Costs

Table 2 displays the design criteria activities, their estimated costs, and the potential available revenue need to pay for those activities. The available revenues estimates represent the indicated advertised

rate which the starting point of a sale for bid. Look at the adjustment of 25% to provide a cushion to the available revenue estimate to account for factors such as an overestimate of cruise volume.

Table 2: Activity Expenditures by Alternative. Number of years activities take place varies.

	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5
Available Revenues					
Estimated Advertised Rate	$0	$338,073.87	$339,619.51	$179,097.96	$150,037.45
Neg. Adjustment for Potential Underrun (25%)	$0	$84,518.25	$84,904.87	$44,774.49	$37,509.36
75% Stumpage Available for Stewardship	$0	$253,555.32	$254,714.64	$134,323.47	$112,528.09
Activities not included in the Appraisal					
Field Prepwork; Layout/Mark/Cruise	$0	$200,450.25	$200,450.25	$125,446.46	$98,402.85
Sale administration (5 yrs)	$0	$265,811.94	$265,811.94	$221,509.95	$199,358.96
Road Maintenance (6yrs)	$0	$57,714.42	$57,714.42	$39,174.03	$28,857.21
Temporary Road Construction and Decommissioning (.35 miles)	$0	$3,697.37	$0	$0	$0
Cutting and Rearranging of non-commercial material (lop/scatter, pile, skid, deck, masticate, etc.)	$0	$1,162,373.94	$1,162,373.94	$1,369,759.17	$1,617,273.70
Burning of chaparral (10 yrs)	$0	$56,728.72	$56,728.72	$56,728.72	$56,728.72
Underburning of Forested Stands (10 yrs)	$0	$69,720.79	$69,720.79	$42,090.39	$36,868.18
Monitoring and Spraying of Noxious Weeds at Landings (3yrs)	$0	$2,059.02	$2,059.02	$1,183.00	$1,010.79

The estimated revenue, based on the stumpage rate after a reduction for Treasury obligations, ranges from $112,528.09 to $253,555.32. If sale goes no-bid and is re-offered, it would be assumed that stumpage available for stewardship would be less for an award on a re-offer sale. As one can see, the cutting and re-arrangement of small diameter fuels is where a high proportion of the project costs come from. The values mentioned would be what is available to pay for service-oriented work for the project if the Forest decides to offer a stewardship contract for the project.

Differences in the costs of the majority of the items revolve around the fact that Alternatives 4 & 5 will contain nearly half of the commercial acres within the project than Alternatives 2 & 3. With that, those acres are still planned for non-commercial thinning, so the costs of those projects become offset by less

revenue expected because of half the acres being offered with a commercial component. Regardless, unless revenues are higher than the estimated advertised rates, funding in addition to the expected revenue from timber value will be needed to achieve the non-commercial, restoration-types of activities.

The sale of timber in this project is an incidental outcome of the commercial and non-commercial thinning to meet a variety of objectives such as hazardous fuels reduction, habitat improvement, forest health and increased resilience to natural disturbance.

Information for this document was generated from the Mendocino National Forest Land and Resource Management Plan, bid and appraisal information from the Hardin Timber Sale and Lakeview Stewardship Project, and from the use of the Forest Service Quicksilver Economics Analysis program.

Summary

For more economic information regarding timber harvests and their impacts on jobs and labor within northern California, refer to the latest version of *California's Forest Products Industry and Timber Harvest* annual reports, authored by the Pacific Northwest Research Station.

The alternatives appear to be financially feasible, given that estimated high bids are obtained and greater than base rates. All alternatives also have negative present net values when using predicted high bid multiplied by expected volumes. Alternative 2 has the highest PNV. To implement any alternative, additional funding will likely be needed depending on the sale revenue.